

U.S. Environmental Protection Agency  
Region 1

November 19, 1999

Mr. Carmine DiBattista, Chief  
Bureau of Air Management  
Connecticut Department of Environmental Protection  
79 Elm Street  
Hartford, CT 06106-5127

Dear Mr. DiBattista:

On February 10, 1999, the Connecticut Department of Environmental Protection (CT DEP) submitted to EPA its proposed 2007 motor vehicle emission budgets for nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOCs) for the State's two ozone nonattainment areas. CT DEP submitted these budgets as a required component of the attainment demonstration for the one-hour ozone standard for its two ozone nonattainment areas. The proposed budgets submitted are 12.7 tons per summer day (tpsd) for VOC and 30.0 tpsd for NO<sub>x</sub> in the severe area, and 37.0 tpsd for VOC and 92.7 tpsd for NO<sub>x</sub> in the serious area.

These budgets were developed from the mobile source inventories developed by EPA for the NO<sub>x</sub> SIP call. In its February 10, 1999 letter, CT DEP concluded that it is reasonable to extract 2007 transportation conformity budgets from the NO<sub>x</sub> SIP call since "Connecticut's ozone attainment demonstrations rely on EPA modeling results developed using emission inventories equivalent to those used by EPA to develop the NO<sub>x</sub> SIP call." Originally, EPA agreed that this approach could be used since we thought that transportation conformity budgets extracted from the NO<sub>x</sub> SIP call emission inventories would closely match those that would be developed by Connecticut using the traditional approach based on specific mobile modeling and VMT projections from your transportation demand model. In fact, we thought that transportation conformity budgets extracted from the NO<sub>x</sub> SIP call emission inventories may actually be on the conservative side since they would be based on ozone season emission estimates (divided by the number of days in the ozone season (i.e., 153) to arrive at average daily emissions) versus typical ozone season day emission estimates. In developing ozone season emission estimates, emissions would be based on an average temperature for each of the five months comprising the season instead of a typical ozone season day temperature, which would be based on temperatures from the ten highest ozone days over a three year period.

Furthermore, it was our understanding that the MOBILE5b inputs and VMT growth assumptions used in emissions modeling for the NO<sub>x</sub> SIP call accurately reflected the mobile source strategies that Connecticut was implementing and reflected assumptions Connecticut would make were it to project emissions itself. This is based on the letter Connecticut DEP sent to EPA on February 22, 1999 in response to a specific request by EPA for the states to review the NO<sub>x</sub>

SIP call inventory modeling analyses developed by EPA. In that letter, Connecticut DEP said that based on a limited review of the area, highway, and non-road sectors of the NOx SIP call inventories that there were several differences compared to its own projections. Connecticut DEP went on to say that the differences for those source sectors were judged to be inconsequential for purposes of complying with the NOx SIP Call because Connecticut planned to rely on reductions from stationary point sources to comply with the requirements of the SIP Call.

Our concurrence with the approach used to develop your 2007 transportation conformity budget changed, however, after we received and thoroughly reviewed the updated Air Quality Conformity Report dated June 1999 and the Connecticut Department of Transportation July 9, 1999 State Transportation Improvement Program (STIP) Amendment transmitted to us by the Federal Highway Administration on July 26, 1999. We concurred on Connecticut's conformity determination for the 1999 STIP in a letter we sent to the Federal Highway Administration on August 24, 1999. That determination was based on the previously approved 1999 post-1996 plan budgets, not the proposed 2007 motor vehicle attainment budgets which must be found adequate prior to its use in a conformity determination.

In that letter we did note that "The sizable differences between the STIP's 2007 projected emission levels and the proposed 2007 budgets from the ozone attainment plans has caused us to look more closely at the assumptions used to derive the budget levels," and that we would communicate our concerns to your agency in the near future.

Our additional review of the differences between the assumptions used to develop the STIP's 2007 projected emission levels versus the assumptions used to develop the 2007 NOx SIP call emission estimates from which the proposed 2007 transportation conformity budgets were derived has uncovered the following:

- 1) The STIP modeling indicates that Connecticut is implementing the California low emission vehicle program. While Connecticut did implement this program in 1998, Connecticut began implementing the national low emission vehicle program starting in 1999 as an alternative. The modeling used to develop the 2007 NOx SIP call emission estimates from which the proposed 2007 transportation conformity budgets were derived reflected the national low emission vehicle program starting in 1999. To ascertain credit for California LEV implemented prior to 1999, Connecticut should ensure that the LEV parameter record indicates the alternative program began in 1998, and ideally utilize state specific sales estimates for each certification class and vehicle type. Alternatively, Connecticut could follow the MOBILE5 users guide (section 2.3.7) for California LEV phase in. This has recently been discussed between our staffs.
- 2) The modeling used to develop the 2007 NOx SIP call emission estimates from which the proposed 2007 transportation conformity budgets were derived did not include heavy duty gas vehicles (defined as 8500 to 10,000 lbs. GVW) as part of Connecticut's motor vehicle inspection and maintenance program. The STIP modeling more accurately reflects I/M on heavy duty gas vehicles.
- 3) The modeling used to develop the 2007 NOx SIP call emission estimates did not assume

technician training. The STIP modeling more accurately reflects technician training.

4) The modeling used to develop the 2007 NO<sub>x</sub> SIP call emission estimates did not use the Connecticut specific modal split and registration information that is available, thereby using the defaults. The STIP modeling reflected Connecticut specific modal split and 1990 registration information. Since the default values for the modal split appear more accurate than the data identified by Connecticut, we recommend using the default values in calculating the 2007 budgets and in all future conformity determinations. The default values for vehicle registration should only be used if Connecticut does not have recent state specific data available.

5) The STIP modeling does not assume that there are any cold starts under several of the speed and road type conditions contained in the MOBILE5b modeling whereas the modeling used to develop the 2007 NO<sub>x</sub> SIP call emission estimates did for all road types. While the hot start estimates for highways may be reasonable, the other roadway types were not adjusted from defaults in developing the new 2007 budget mobile inputs. Regardless, we recommend that the defaults be used throughout the modeling used to develop the revised 2007 budgets and in all future conformity determinations.

6) The vehicle miles traveled estimates for Connecticut are lower in the STIP modeling than in the modeling used to develop the NO<sub>x</sub> SIP call emission inventories.

7) The STIP modeling is based on a typical ozone season day temperature whereas as explained above the modeling used to develop the NO<sub>x</sub> SIP call emission inventories was based on an average temperature for each of the five months comprising the ozone season.

Because of problems with some of the assumptions used to develop the 2007 NO<sub>x</sub> SIP call emission estimates from which the proposed 2007 transportation conformity budgets were derived and because of the sizable differences between the STIP's 2007 projected emission levels and the 2007 budgets from the ozone attainment plans, EPA does not consider the budgets submitted by Connecticut DEP on February 10, 1999 adequate for conformity purposes. In a March 2, 1999 decision made by the United States Court of Appeals for the District of Columbia Circuit in response to a case brought by the Environmental Defense Fund on EPA's third set of conformity revisions, the court found that a conformity determination using a submitted motor vehicle emission budget cannot be made until EPA makes a positive determination that the submitted budget is adequate. Therefore, the proposed 2007 transportation conformity budgets cannot be used for conformity until they are revised, resubmitted to EPA, and determined adequate by us.

In general, it appears that the methodology used to develop the emissions estimates in the STIP seem more accurate than what was used to develop 2007 NO<sub>x</sub> SIP call emission estimates. Therefore, much of the methodology and assumptions used in the STIP should be used to establish the 2007 conformity budgets for both of Connecticut's ozone nonattainment areas. We ask that revised final 2007 budgets subjected to a public hearing be submitted to EPA to replace the February 10, 1999 numbers no later than December 31, 1999. This date is critical as we have discussed with you for the approveability of your ozone attainment demonstrations. For more information, please see EPA's November 3, 1999 memo entitled "Guidance on Motor

Vehicle Emission Budgets in One-Hour Ozone Attainment Demonstrations” which has previously been forwarded to your office.

In submitting these budgets, it is critical that all the factors built into the emission budgets be clearly documented. As stated earlier, in some cases the MOBILE runs themselves need to be corrected. Further, we understand that Connecticut uses a statewide transportation model which assigns speeds to vehicles on different road classes. Speed is a very important variable to vehicle emissions, and changes in the future should be scrutinized carefully. Inappropriate assumptions about speed changes can dramatically affect emissions. Further, we note that default values should be used for start/cold start fractions and modal splits. The assumptions used in the mobile modeling should be reviewed for reasonableness and clearly documented for now and for future reference.

Furthermore, as we have discussed with you, our review of your attainment demonstrations has concluded that more reductions from mobile sources are necessary to reasonably conclude that Connecticut will attain the 1-hour ozone standard by 2007. On May 1, 1999, EPA announced a proposal for more stringent tailpipe emission standards for all passenger vehicles, including sport utility vehicles, minivans and pick-up trucks. These standards, referred to as “Tier 2”, will subject passenger vehicles and other light-duty trucks to the same national pollution standards. On that date, EPA also announced proposed standards for the sulfur content in gasoline. The predicted reductions from this program estimated to occur by 2007 can be included in your ozone attainment demonstrations and incorporated into your 2007 transportation conformity budgets at this time, and Connecticut can incorporate Tier 2 into the 2007 budgets using information contained in the November 8, 1999 memo entitled “1-Hour Attainment Demonstrations and Tier2/Sulfur Rulemaking,” which has been forwarded to your office. However, EPA can find motor vehicle emissions budgets to be adequate in areas that must rely on Tier 2 reductions for attainment, even if they do not include the effects of Tier 2, subject to the following condition: any subsequent conformity determinations can not include the effects of Tier 2 until they are also included in SIP budgets that we have found adequate. Since Tier 2 impacts will be missing from both sides of the conformity analysis equation (SIP budgets and the emissions projections for the transportation plan and program), these budgets can be adequate in the interim.

By undertaking this effort, we believe emissions can most accurately be predicted, including assessing the air quality benefits of all programs that Connecticut implements. Overall, the result should be lower budgets than those contained in your February 10, 1999 letter.

In conclusion, the proposed 2007 budgets submitted on February 10, 1999 cannot be found adequate. The modeling issues addressed above must be addressed and new 2007 VOC and NOx budgets for the two Connecticut ozone nonattainment areas must be submitted. In addition, because of ongoing litigation, it is necessary that Connecticut have adequate budgets in place by the spring of 2000. Therefore, we request that you submit revised budgets to us by December 31, 1999 to allow time for the adequacy process to proceed. In addition, we request that you submit a draft submittal as soon as possible to expedite our review of the methodology and assumptions used to generate the budgets.

If you or your staff would like to discuss this further, please contact Jeff Butensky at (617) 918-1665.

Sincerely,

David B. Conroy, Chief  
Air Quality Planning Unit

Enclosure

cc: Paul Bodner, Connecticut DEP  
Amy Jackson-Grove, FHWA CT Division  
Kathryn Sargeant, EPA-OMS